Complete Summary

GUIDELINE TITLE

Pressure ulcer prevention and treatment following spinal cord injury.

BIBLIOGRAPHIC SOURCE(S)

Paralyzed Veterans of America. Pressure ulcer prevention and treatment following spinal cord injury: A clinical practice guideline for health care professionals. Washington (DC): Paralyzed Veterans of America; 2000 Aug. 94 p. [448 references]

Pressure ulcer prevention and treatment following spinal cord injury: a clinical practice guideline for health-care professionals. J Spinal Cord Med 2001 Spring;24(Suppl 1):S40-101. [448 references] PubMed

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Pressure ulcers

GUIDELINE CATEGORY

Evaluation
Management
Prevention
Rehabilitation

Risk Assessment
Treatment

CLINICAL SPECIALTY

Critical Care
Dermatology
Family Practice
Internal Medicine
Nursing
Nutrition
Physical Medicine and Rehabilitation
Plastic Surgery
Preventive Medicine

INTENDED USERS

Advanced Practice Nurses
Allied Health Personnel
Health Plans
Hospitals
Managed Care Organizations
Nurses
Occupational Therapists
Patients
Physicians
Psychologists/Non-physician Behavioral Health Clinicians
Social Workers

GUIDELINE OBJECTIVE(S)

- To provide guidance and assistance in the decisions required to restore health, independence, control, and self-esteem to people with spinal cord injury.
- To provide a conceptual framework within which to develop effective strategies for preventing and treating pressure ulcers.

TARGET POPULATION

Adolescents and adults with spinal cord injury (SCI)

INTERVENTIONS AND PRACTICES CONSIDERED

1. Risk assessment and risk assessment tools
2. Prevention strategies
3. Nutrition assessment of the spinal cord injured patient and support measures for those who are nutritionally compromised
4. Assessment of the individual with a pressure ulcer, including history; physical and laboratory tests; psychological status; availability and use of personal care assistance; and positioning/posture and related equipment
5. Assessment of the pressure ulcer

6. Nonsurgical treatment of pressure ulcers, including:
    - Cleansing
    - Debridement
    - Dressings
    - Electrical stimulation
    - Continued assessment
7. Surgical treatment of pressure ulcers, including excision and resurfacing
8. Preoperative and postoperative care
9. Surgical and nonsurgical management of complications of pressure ulcers
10. Support surfaces and positioning for managing tissue loads, including:
    - Bed positioning
    - Bed support surfaces
    - Wheelchair positioning
    - Wheelchair support surfaces

MAJOR OUTCOMES CONSIDERED

- Prevention of pressure ulcers
- Morbidity due to complications of pressure ulcers
- Recurrence of pressure ulcers
- Improvement in overall size and condition of pressure ulcer
- Cost of treating pressure ulcers
- Quality of life

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

A preliminary search of the MEDLINE database from 1966 to 1998 was conducted, the main issues associated with pressure ulcers were identified, and the volume of literature available on the subject was estimated. The literature search criteria included elderly as well as nonelderly adults. Children under the age of 13 were excluded as were articles involving nontraumatic paralysis. The search was limited to articles published in English. Study designs employing clinical trials (randomized and nonrandomized), cohort studies, case controls, case series, and cross-over studies were included. Case reports and "n-of-one" studies were excluded.

Review articles and overview articles examining pressure ulcers in individuals with spinal cord injury were identified and retrieved if pressure ulcers were the focus of discussion. It is important to note that although review articles were included, they were not intended for use as evidence for the guideline. Rather, they were used to identify "gray literature" and to cross-reference with the literature search to ensure that all relevant articles on the topic had been identified and retrieved for analysis.

Appropriate key words and Index Medicus subheadings (MeSH subheadings) identified by the panel were used to search the MEDLINE database (1966-98) and the CINAHL nursing database (1982-98). These initial literature searches concentrated on articles focusing on pressure ulcers in individuals with spinal cord injury. A second search was conducted in the MEDLINE database (1993-98), focusing on the general population with pressure ulcers. The purpose of the second search was to identify literature that had emerged since publication of the Agency for Health Care Policy and Research (AHCPR) pressure ulcer guidelines. Whenever possible, "exploded" Index Medicus subheadings were used, allowing the inclusion of more relevant literature than would be discovered using text word searches. Second-level searches were conducted using the major ands minor Index Medicus subheadings retrieved from relevant articles.

Approximately, 1,800 abstracts from the literature searches were reviewed, using the inclusion and exclusion criteria for relevance to the prevention and treatment of pressure ulcers. Nearly 350 articles were deemed relevant to the guideline and were retrieved. Of these articles, more than 200 clearly met the criteria and were slated for data extraction. Another 23 articles did not have abstracts, or their relevance was unclear, so they were retrieved for further evaluation. Approximately 50 articles were identified that did not have valid study designs but were worthy of retrieval for education and orientation purposes. Finally, relevant review articles (approximately 45 in number) were retrieved.

NUMBER OF SOURCE DOCUMENTS

More than 200 source documents were selected from the primary and secondary literature searches.

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Hierarchy of the Levels of Scientific Evidence:

I. Large randomized trials with clear-cut results (and low risk of error)
II. Small randomized trials with uncertain results (and moderate to high risk of error
III. Nonrandomized trials with concurrent or contemporaneous controls
IV. Nonrandomized trials with historical controls
V. Case series with no controls

METHODS USED TO ANALYZE THE EVIDENCE

Meta-Analysis
Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Standardized data extraction forms were used to extract relevant information from the articles found to meet the inclusion and exclusion criteria. Extracted information was compiled into evidence tables according to subject area. The methodologists categorized the articles into topic areas and disseminated relevant articles and evidence tables to panel members for study and consideration. Articles identified as relevant by panel members were extracted, and supplemental evidence tables were created and disseminated.

The methodologists employed the hierarchy of the levels of scientific evidence first discussed by Sackett (1989) and later enhanced by Cook et al. (1992) and the U.S. Preventive Health Services Task Force (1996). Each of the guideline recommendations was classified, according to the level of scientific evidence used in the development of the recommendation. Additionally, each study was evaluated for internal and external validity.

Statistical meta-analyses or other specialized studies were conducted, as needed.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

The guideline development process adopted by the Spinal Cord Medicine Consortium consists of 12 steps, leading to panel consensus and organizational endorsement. After the steering committee chooses a topic, a panel of experts is selected. Panel members must have demonstrated leadership in the topic area through independent scientific investigation and publication. Following a detailed explication and specification of the topic by select steering committee and panel members, consultant methodologists review the international literature, prepare evidence tables that grade and rank the quality of research, and conduct statistical meta-analyses and other specialized studies, as needed. The panel chair then assigns specific sections of the topic to the panel members, based on area of expertise. Writing begins on each component using the references and other materials furnished by the methodology support group.

After the panel members complete their sections, a draft document is generated during the first full meeting of the panel. The panel employs an iterative process in document preparation to incorporate new literature citations or other evidence-based information not previously available.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Categories of the Strength of Evidence Associated with the Recommendation:

A. The recommendation is supported by scientific evidence from properly designed and implemented controlled trials providing statistical results that consistently support the guidelines statement

B. The recommendation is supported by scientific evidence from properly designed and implemented clinical series that support the guidelines statement
C. The recommendation is supported by expert opinion

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

External Peer Review
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

After legal review to consider antitrust, restraint-of-trade, and health policy matters, the draft document was reviewed by clinical experts from each of the consortium organizations plus other select clinical experts and consumers. The review comments were assembled, analyzed, and entered into a database, and the documents revised to reflect the reviewers' comments. Following a second legal review, the draft document was distributed to all consortium organization governing boards. Final technical details were negotiated among the panel chair, members of the organizations' boards, and expert panelists. If substantive changes were required, the draft received a final legal review.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

The following provides a summary of the recommendations presented in the guideline document. The reader is directed to the original guideline for a detailed discussion of each of the following topics.

The levels of evidence (I-V), grades of recommendations (A-C), and strength of panel opinion (low, moderate and strong) are repeated at the end of the Major Recommendations.

Prevention

Risk Factors, Risk Assessment, and Risk Assessment Tools

1. Conduct comprehensive, systematic, and consistent assessment of pressure ulcer risk factors in individuals with spinal cord injury.
    - Assess and document risk on admission and reassess on a routine basis, as determined by the health-care setting, institutional guidelines, and changes in the individual's health status.

- Use clinical judgment as well as a risk assessment tool to assess risk. Assess demographic, physical/medical, and psychosocial risk factors associated with
- pressure ulcer prevention.

Scientific evidence: I, II, III, V; Grade of recommendation: A, B, C; Strength of panel opinion: Strong

Prevention Strategies

2. Implement pressure ulcer prevention strategies as part of the comprehensive management of acute spinal cord injury and review all aspects of risk when determining prevention strategies.
    - Avoid prolonged positional immobilization whenever possible.
    - Institute pressure relief as soon as emergency medical condition and spinal stabilization allow.
    - Initiate intraoperative pressure reduction strategies.

    Scientific evidence: III, V; Grade of recommendation: C; Strength of panel opinion: Strong

3. Conduct daily comprehensive visual and tactile skin inspections, with particular attention to the areas most vulnerable to pressure ulcer development, including, but not limited to:
    - Ischii
    - Sacrum/coccyx
    - Trochanters
    - Heels

    Scientific evidence: V; Grade of recommendation: C; Strength of panel opinion: Strong

4. Turn or reposition individuals with spinal cord injury initially every 2 hours in the acute and rehabilitation phases if the medical condition allows.
    - Eliminate stretching and folding of soft tissues and prevent shearing when individuals are repositioned.
    - Avoid positioning individuals who are side-lying in bed directly on their trochanter.

    Scientific evidence: V; Grade of recommendation: C; Strength of panel opinion: Strong

5. Evaluate the individual and his/her support environment for optimal maintenance of skin integrity.
    - Apply pressure-reducing support surfaces preventively to protect soft tissues from bruise and injury.
    - Prevent moisture accumulation and temperature elevation at the support surface-skin interface.
    - Apply pillows and cushions to bridge contacting tissues and unload bony prominences; do not use donut-type devices.

- Establish a mechanism to follow up on equipment performance specific to pressure ulcer prevention (support surfaces for the bed and wheelchair) and determine if changes in medical or health status have altered the effectiveness of the support surface.

Scientific evidence: II, III, V; Grade of recommendation: B, C; Strength of panel opinion: Strong

6. Provide an individually prescribed wheelchair and pressure-reducing seating system.
    - Establish and initiate a specific pressure relief regimen within the individual's capability.
    - Employ a power weight-shift system when manual pressure relief is not possible.

    Scientific evidence: II, V; Grade of recommendation: B, C; Strength of panel opinion: Strong

7. Implement an ongoing exercise regimen for the medically stable spinal cord injured individual to promote maintenance of skin integrity, increase strength of paretic and nonparalyzed muscles, improve cardiovascular endurance, and prevent fatigue and deconditioning.

    Scientific evidence: II, III, V; Grade of recommendation: B, C; Strength of panel opinion: Strong

8. Provide individuals with spinal cord injury, their families, significant others, and health-care professionals with specific information on effective strategies for the prevention and treatment of pressure ulcers.

    Scientific evidence: V; Grade of recommendation: C; Strength of panel opinion: Strong

<u>Nutrition</u>

9. Assess nutritional status of all spinal cord injured individuals on admission and as needed, based on medical status, including:
    - Dietary intake
    - Anthropometric measurements
    - Biochemical parameters (prealbumin, total protein, albumin, hemoglobin, hematocrit, transferrin, and total lymphocyte count)

    Scientific evidence: II, III, V; Grade of recommendation: B, C; Strength of panel opinion: Strong

10. Provide adequate nutritional intake to meet the individual's needs, especially:
    - Calories (or Energy)
    - Protein
    - Micronutrients (zinc, vitamin C, vitamin A, and vitamin E
    - Fluids

Scientific evidence: II, III, V; Grade of recommendation: B, C; Strength of panel opinion: Strong

11. Implement aggressive nutritional support measures if dietary intake is inadequate or if an individual is nutritionally compromised.

    Scientific evidence: II; Grade of recommendation: B; Strength of panel opinion: Strong

Assessment Following Onset of a Pressure Ulcer

Assessment of the Individual With a Pressure Ulcer

12. Perform an initial comprehensive assessment of the individual with a pressure ulcer, to include:
    - Complete history
    - Physical examination and laboratory tests
    - Psychological health, behavior, cognitive status, and social and financial resources
    - Availability and utilization of personal care assistance
    - Positioning, posture, and related equipment

    Scientific evidence: I, II, III, V; Grade of recommendation: A, B, C; Strength of panel opinion: Strong

Assessment of the Pressure Ulcer

13. Describe in detail an existing pressure ulcer. Include the following parameters:
    - Anatomical location and general appearance
    - Size (length width, depth, and wound area)
    - Stage
    - Exudate/odor
    - Necrosis
    - Undermining
    - Sinus tracts
    - Infection
    - Healing (granulation and epithelialization)
    - Wound margins/surrounding tissue

    Scientific evidence: I, II, V; Grade of recommendation: A, B, C; Strength of panel opinion: Strong

Treatment

Nonsurgical

Cleansing

14. Cleanse pressure ulcers at each dressing change.

- Use minimum mechanical force when cleaning with gauze, cloth, or sponge.
- Use enough irrigation pressure to enhance cleansing without causing trauma to the wound.
- Use normal saline or wound cleansers.
- Avoid antiseptic agents.
- Consider hydrotherapy for ulcers containing large amounts of exudate and necrotic tissue.

Scientific evidence: I, III, V; Grade of recommendation: A, C; Strength of panel opinion: Strong

Debridement

15. Debride devitalized tissue from pressure ulcers using a method appropriate to the ulcer's status and the individual's condition and goals.
    - Debride areas in which there is eschar and devitalized tissue

    Scientific evidence: V; Grade of recommendation: C; Strength of panel opinion: Strong

Dressings

16. Use dressings that will keep the ulcer bed continuously moist and the surrounding intact skin dry.
    - Use a dressing that controls exudate, but does not desiccate the ulcer bed or macerate surrounding tissue.
    - Loosely fill pressure ulcer cavities with dressing material to avoid dead space; avoid overpacking the ulcer
    - Monitor the placement of all dressings, especially those in anatomical areas in which they are difficult to keep intact
    - Perform dressing changes on a specific schedule based on assessment of the individual, the ulcer, and the condition of the dressing. Consult the dressing manufacturer's package insert for general information and about the frequency of dressing changes.

    Scientific evidence: I, II; Grade of recommendation: A, B; Strength of panel opinion: Strong

Electrical Stimulation

17. Use electrical stimulation to promote closure of stage III or IV pressure ulcers combined with standard wound care interventions.

    Scientific evidence: I, II; Grade of recommendation: A; Strength of panel opinion: Strong

Reassessment

18. Monitor and assess the pressure ulcer on a consistent, ongoing basis to determine the adequacy of the plan of care.

- Monitor the pressure ulcer at each dressing change.
- Document ulcer assessment at least weekly and every time the condition of the pressure ulcer or the individual changes.

Scientific evidence: None; Grade of recommendation: Expert consensus; Strength of panel opinion: Strong

19. Modify the treatment plan if the ulcer shows no evidence of healing within 2 to 4 weeks.
    - Review individual risk factors when assessing the healing of pressure ulcers.
    - Evaluate healing progress using an instrument or other quantitative measurements.

    Scientific evidence: I, V; Grade of recommendation: A, C; Strength of panel opinion: Strong

Surgical

20. Refer appropriate individuals with complex, deep stage III pressure ulcers (i.e., undermining, tracts) or stage IV pressure ulcers for surgical evaluation. When surgery is indicated, include the following tenets of surgical treatment:
    - Excising of ulcer, surrounding scar, bursa, soft tissue calcification, and underlying necrotic or infected bone
    - Filling dead space, enhancing vascularity of the healing wound, and distributing pressure off the bone
    - Resurfacing with a large regional pedicle flap, with suture line away from the area of the direct pressure, and one that does not encroach on adjacent flap territories
    - Preserving options for future potential breakdowns

    Scientific evidence: V; Grade of recommendation: C; Strength of panel opinion: Strong

Preoperative Care

21. Assess, treat and optimize the following factors preoperatively:
    - Local wound infection
    - Nutritional status
    - Bowel regulation
    - Severe spasm and contractures
    - Comorbid conditions
    - Previous ulcer surgery
    - Smoking
    - Osteomyelitis
    - Urinary tract infection
    - Heterotopic ossification

    Scientific evidence: II, III, V; Grade of recommendation: B, C; Strength of panel opinion: Strong

Postoperative Care

22. Be cognizant of postoperative care procedures.
    - Position the individual in a manner that keeps pressure off a fresh surgical site.
    - Use an air-fluidized bed when pressure on the surgical flap is unavoidable.
    - Progressively mobilize the individual to a sitting position over at least 4 to 8 weeks to prevent reinjury of the ulcer or surgical site.
    - Provide subsequent patient education on pressure management and skin inspection.

    Scientific evidence: V; Grade of recommendation: C; Strength of panel opinion: Strong

Complications of Pressure Ulcers

Nonsurgical

23. Identify the pressure of tissue and/or bone infection
    - Obtain quantitative tissue and/or bone cultures in ulcers not responding to routine therapeutic measures.
    - Obtain a tissue and/or bone biopsy to confirm infection, if necessary.

    Scientific evidence: III, V; Grade of recommendation: C; Strength of panel opinion: Strong

24. Identify the potential complications of immobility associated with pressure ulcer management and implement preventive and therapeutic measures for:
    - Nutritional deficiencies and dehydration
    - Decreased range of motion
    - Deconditioning (cardiopulmonary, cardiovascular, and musculoskeletal)

    Scientific evidence: III, V; Grade of recommendation: C; Strength of panel opinion: Strong

25. Manage hypergranulation tissue that may impede ulcer healing.

    Scientific evidence: V; Grade of recommendation: C; Strength of panel opinion: Strong

26. Identify the potential psychosocial impacts of pressure ulcers and immobility and provide referral for therapeutic interventions based upon the individual's characteristics and circumstances. Refer to appropriate resources for problem resolution, including:
    - Vocational rehabilitation services
    - Peer counseling and support groups
    - Formal psychotherapy and/or family therapy

Scientific evidence: III, V; Grade of recommendation: C; Strength of panel opinion: Strong

Surgical

27. Identify potential complications of surgical intervention, including:
    - Wound dehiscence/wound separation
    - Delayed infection and abscess
    - Hematoma and seroma

    Scientific evidence: None; Grade of recommendation: Expert consensus; Strength of panel opinion: Strong

Support Surfaces and Positioning for Managing Tissue Loads

Bed Positioning

28. Use bed-positioning devices and techniques to prevent and treat pressure ulcers. Use devices and techniques that are compatible with the bed type and the individual's health status.
    - Avoid positioning individuals directly on a pressure ulcer.
    - Avoid positioning individuals directly on the trochanter
    - Use cushions and positioning aids to relieve pressure on pressure ulcers or vulnerable skin areas by elevating them away from the support surface.
    - Avoid close cutouts or donut-type cushions
    - Prevent contact between bony prominences.
    - Limit the amount of time the head of the bed is elevated
    - Develop, display, and use an individualized positioning regimen and repositioning schedule.

    Scientific evidence: II, V; Grade of recommendation: B, C; Strength of panel opinion: Strong

Bed Support Surfaces

29. Use pressure-reducing bed support surfaces for individuals who are at risk for or who have pressure ulcers.
    - Select a static support surface for individuals who can be positioned without weight bearing on an ulcer and without bottoming out on the support surface.
    - Select a dynamic support surface if the individual cannot be positioned without pressure on an ulcer, when a static support surface bottoms out, if there is no evidence of ulcer healing, or if new ulcers develop.
    - Use low-air loss and air-fluidized beds in the treatment of pressure ulcers if one or more of the following conditions exist:
    - Pressure ulcers on multiple turning surfaces
    - Compromised skin temperature and moisture control in the presence of large stage III or IV pressure ulcers

Scientific evidence: I, II, V; Grade of recommendation: A, B, C; Strength of panel opinion: Strong

Wheelchair Positioning

30. Prescribe wheelchairs and seating systems according to individualized anthropometric, ergonomic, and functional principles.
    - Obtain specific body measurements for optimal selection of seating system dimensions.
    - Measure the effects of posture and deformity on interface pressure distribution.
    - Prescribe a power weight-shifting wheelchair system for individuals who are unable to independently perform an effective weight shift.
    - Use clinical judgment as well as objective data in determining the compatibility of the individual's shape with the seating system.

    Scientific evidence: II, III, V; Grade of recommendation: B, C; Strength of panel opinion: Strong

31. Evaluate the individual's postural alignment, weight distribution, balance, stability, and pressure reduction capabilities to establish a proper sitting schedule.
    - Avoid positioning the wheelchair-seated individual directly on a pressure ulcer.
    - Allow limited sitting in individuals capable of performing weight shifts every 15 minutes.
    - Reposition the wheelchair-seated individual at least every hour; if this is not possible and the individual is unable to perform weight shifts, return the individual to bed.

    Scientific evidence: II, III; Grade of recommendation: B, C; Strength of panel opinion: Strong

Wheelchair Support Surfaces

32. Use appropriate wheelchair cushions with all individuals with spinal cord injury.
    - Inspect and maintain all wheelchair cushions at regularly scheduled intervals.

    Scientific evidence: II, V; Grade of recommendation: B, C; Strength of panel opinion: Strong

Definitions:

Hierarchy of the Levels of Scientific Evidence:

I. Large randomized trials with clear-cut results (and low risk of error)
II. Small randomized trials with uncertain results (and moderate to high risk of error)
III. Nonrandomized trials with concurrent or contemporaneous controls

IV. Nonrandomized trials with historical controls
V. Case series with no controls

Categories of the Strength of Evidence Associated With the Recommendations

A. The guideline recommendation is supported by one or more level I studies
B. The guideline recommendation is supported by one or more level II studies
C. The guideline recommendation is supported only by level III, IV, or V studies

Levels of Panel Agreement with the Recommendation

Based on a 5-point scale (1 corresponding to neutrality; 5 representing maximum agreement)

Low
Mean agreement score of 1.00 to less than 2.33
Moderate
Mean agreement score of 2.33 to less than 3.67
Strong
Mean agreement score of 3.67 to 5.00

Note: If the literature supporting a guideline recommendation came from two or more levels, the number and the level of evidence supporting the studies are reported (e.g., a guideline recommendation that is supported by two studies, one a level III and the other a level V, the scientific evidence would be indicated as III, V). Likewise, if a guideline recommendation is supported by literature that crossed two categories, both categories are reported (e.g., a recommendation that includes both level II and III studies would be classified as category B, C).

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The recommendations are based on an extensive review and analysis of the available scientific literature and represent the most current understanding of the interventions applied in clinical practice. Where the scientific literature failed to provide guidance in the development of this document, the panel members based their recommendations on expert consensus.

The type of supporting evidence is identified for each recommendation (see "Major Recommendations").

In addition, the references list presented in the original guideline document provides the "scientific evidence (I-V)" for each graded article. The reference list

also indicates which references were used, including those that were not graded but were essential to the guideline as whole.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

The benefits of clinical practice guidelines for the spinal cord medicine practice community are numerous. Among the more significant applications and results are the following:

- Clinical practice options and care standards
- Medical and health professional education and training
- Building blocks for pathways and algorithms
- Evaluation studies of clinical practice guidelines use and outcomes
- Research gap identification
- Cost and policy studies for improved quantification
- Primary source for consumer information and public education
- Knowledge base for improved professional consensus building

Additional benefits include:

- Reduced incidence and recurrence of pressure ulcer in patients with spinal cord injury

POTENTIAL HARMS

Not Stated

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- This guideline has been prepared based on scientific and professional information known about outcomes following traumatic spinal cord injury and its treatment in 1999. Users of this guideline should periodically review this material to ensure that the advice herein is consistent with current reasonable clinical practice.
- Since most pressure ulcer literature does not focus on persons with spinal cord injury, there were a number of instances where no spinal cord injury-specific literature existed with respect to a particular recommendation. In those instances, findings from studies of other populations were reported.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Living with Illness
Staying Healthy

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Paralyzed Veterans of America. Pressure ulcer prevention and treatment following spinal cord injury: A clinical practice guideline for health care professionals. Washington (DC): Paralyzed Veterans of America; 2000 Aug. 94 p. [448 references]

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ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2000 Aug

GUIDELINE DEVELOPER(S)

Consortium for Spinal Cord Medicine - Private Nonprofit Organization
Paralyzed Veterans of America - Private Nonprofit Organization

SOURCE(S) OF FUNDING

Paralyzed Veterans of America (PVA)

GUIDELINE COMMITTEE

Multidisciplinary Pressure Ulcer Clinical Practice Guideline Development Panel

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Panel Members: Susan L. Garber, Chairperson, MA, OTR, FAOTA; Andrea K. Biddle, PhD; Carla N. Click, RN, MSN, CWOCN, GNP; J. Fred Cowell; Theresa L. Gregorio-Torres, MA, OTR; Nancy K. Hansen, PhD; Luther C. Kloth, MS, PT, CWS; Daniel P. Lammertse, MD; David T. Netscher, MD; Steven I. Reger, PhD, CP; Donna J. Rodriquez, MS, RD, CNSD; Gladys P. Rodriquez, PhD; Susan Thomason, MN, RN, CS, CETN; Gary Yarkony, MD

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

ENDORSER(S)

American Academy of Physical Medicine and Rehabilitation - Medical Specialty Society
American Association of Spinal Cord Injury Nurses - Professional Association
American Association of Spinal Cord Injury Psychologists and Social Workers - Professional Association
American Paraplegia Society - Disease Specific Society
American Spinal Injury Association - Disease Specific Society

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: May be downloaded from the Paralyzed Veterans of America (PVA) Web site for a nominal fee.

Print copies: Available from the Paralyzed Veterans of America, 801 Eighteenth Street, NW, Washington, DC 20006.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI on March 12, 2001. The information was verified by the guideline developer on March 27, 2001.

COPYRIGHT STATEMENT

Date Modified: 3/14/2005